αlpha 2000 Series

Controllers & Transmitters

EUTECH INSTRUMENTS
Technology Made Easy ...
An ISO 9001 Company

ISO 9001 CERTIFIED

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Technology Made Easy ...
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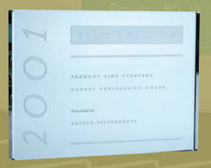
FROST & SULLIVAN
Market Engineering Award Recipient
Product Line Strategy 2001

Member of:
Water Environment Federation
American Water Works Association

CON 08X233408 11/03 Rev 0

Corporate Profile

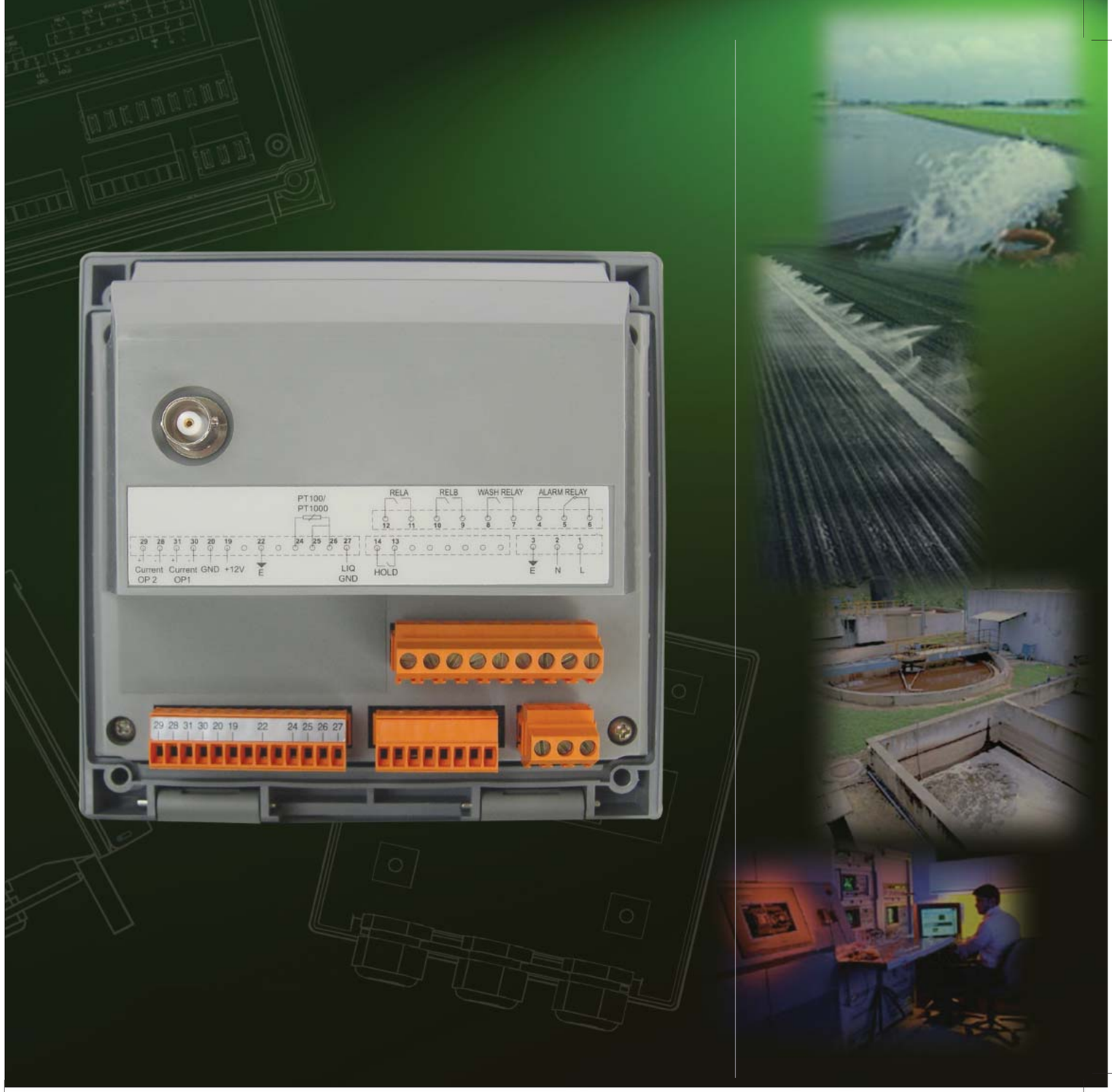
A leader in the field of electrochemical instrumentation, Eutech Instruments is a dynamic company rapidly positioning itself globally as a leading manufacturer of electrochemical instrumentation for water analysis. A pioneer in developing ASIC-based (Application Specific Integrated Circuit) instruments, Eutech Instruments has gained international awards and recognition for its achievements in sensor technology, software programming and product design. Underlying its strong commitment to Research & Development, is the constant drive by Eutech engineers to apply new, emerging technologies to the design and manufacture of advanced electrochemical instruments. Eutech offers a comprehensive range of laboratory and field instrumentation for water analysis and continuous online process instruments for monitoring and control of pH, Conductivity, Total Dissolved Solids (TDS), Turbidity, Temperature, Ion Concentration, Redox Potential (ORP) and Dissolved Oxygen (DO). Eutech's products are certified to comply with global standards for electromagnetic emission and interference. Eutech Instruments is dedicated to producing convenience products for water analysis.



"Having an extensive product line has won Eutech Instruments the renowned Frost & Sullivan Market Engineering Award 2001 for Best Product Line Strategy which credits Eutech for demonstrating the most insight into customer needs and product demands."

Order Code:	Specifications:	
Conductivity Cells		
EC91346S	**Conductivity range**	Up to 500 mS/cm
	Cell constant, k	0.03, 4-Cell
	Temperature sensor	Pt 100, 3-wire
	Pressure rating	6 bar
	Material	Ryton, SS 316
	Thread	¾" NPT
	Cable	Integrated 7.6m, 8-wire double-shielded, open
	Dimension: Length (excludes cable)	150.5 mm
	Diameter (external)	22.2 mm
	Weight	650 g
ECCS10-0-01T	**Conductivity range**	Up to 20 µS/cm
	Cell constant, k	0.01, 2-Cell
	Temperature sensor	Pt 100, 3-wire
	Pressure rating	6 bar
	Material	Titanium
	Thread	½" NPT
	Cable	Integrated 7.5m, 6-wire double-shielded, open
	Dimension: Length (excludes cable)	168 mm
	Diameter (external)	12.8 mm
	Weight	595 g
ECCS10-0-01S	**Conductivity range**	Up to 20 µS/cm
	Cell constant, k	0.01, 2-Cell
	Temperature sensor	Pt 100, 3-wire
	Pressure rating	6 bar
	Material	SS 316
	Thread	½" NPT
	Cable	Integrated 7.5m, 6-wire double-shielded, open
	Dimension: Length (excludes cable)	168 mm
	Diameter (external)	12.8 mm
	Weight	595 g
ECCS10-0-1S	**Conductivity range**	0.1 to 200 µS/cm
	Cell constant, k	0.1, 2-Cell
	Temperature sensor	Pt 100, 3-wire
	Pressure rating	6 bar
	Material	SS 316
	Thread	½" NPT
	Cable	Integrated 7.5m, 6-wire double-shielded, open
	Dimension: Length (excludes cable)	168 mm
	Diameter (external)	12.8 mm
	Weight	595 g
ECCS10-1-0S	**Conductivity range**	Up to 100 mS/cm
	Cell constant, k	1.0, 2-Cell
	Temperature sensor	Pt 100, 3-wire
	Pressure rating	6 bar
	Material	SS 316
	Thread	½" NPT
	Cable	Integrated 7.5m 6-wire double-shielded, open
	Dimension: Length (excludes cable)	168 mm
	Diameter (external)	12.8 mm
	Weight	595 g

Order Code:	Specifications:	
Dissolved Oxygen Probes		
ECDOGEN	**Dissolved oxygen range**	0.5 to 40 ppm
	Type	Galvanic
	Flow rate	1 to 2 cm/s (dependent on temperature and O_2 level)
	Response time	40 to 50 secs to attain 95% of actual reading
	Temperature sensor	Pt 100
	Pressure rating	6 bar
	Material	Delrin housing
	Membrane	HDPE
	Cable	Integral 5m water-resistant, open
	Dimension: Length (excludes cable)	69.5 mm
	Diameter (external)	58.0 mm
	Weight	670 g
ECDOTPII	**Dissolved oxygen range**	0 to 10 ppm
	Type	Galvanic
	Flow rate	1 to 2 cm/s (dependent on temperature and O_2 level)
	Response time	40 to 50 secs to attain 95% of actual reading
	Temperature sensor	Pt 100
	Pressure rating	6 bar
	Material	Delrin housing
	Membrane	HDPE
	Cable	Integral 5m water-resistant, open
	Dimension: Length (excludes cable)	69.5 mm
	Diameter (external)	58.0 mm
	Weight	670 g



αlpha 2000 Series Introduction 2

αlpha pH Controller 4

αlpha Conductivity Controller 6

αlpha Dissolved Oxygen 8

pH Electrodes 10

Conductivity Cells & Dissloved Oxygen Probes 12

Warranty

Eutech Instruments warrants its controllers to be free from manufacturing defects for 12 months and electrodes for 6 months.

Order Coe:	Specifications:	
ORP Electrodes		
ECHTAUTSO-05B	**Sensor**	Gold
	Reference	Annular Teflon, double junction
	Reference electrolyte	Saturated KCl, polymerized gel
	Operating temperature	0 to 80 °C
	Pressure tolerance	6 bars
	Potential matching pin	Platinum
	Material	PPS (Ryton)
	Thread	¾" NPT
	Cable	Integral 5m low-noise semi-conductor screened
	Connector	BNC
	Dimensions: Length (excludes cable)	151 mm
	Diameter (external)	26 mm
	Weight	500g
ECHTPTTSO-05B	**Sensor**	Platinum
	Reference	Annular Teflon, double junction
	Reference electrolyte	Saturated KCl, polymerized gel
	Operating temperature	0 to 80 °C
	Pressure tolerance	6 bars
	Potential matching pin	Platinum
	Material	PPS (Ryton)
	Thread	¾" NPT
	Cable	Integral 5m low-noise semi-conductor screened
	Connector	BNC
	Dimensions: Length (excludes cable)	151 mm
	Diameter (external)	26 mm
	Weight	500g

pH / ORP Electrode Selection Guide

Application	EC-100GTSO-05B	EC-ARGTSO-05B	EC-ARHTTSO-05B	EC-ARTSOHF-05B	EC-ARTSO-05B	EC-HTAUTSO-05B	EC-HTPTTSO-05B
pH measurement with Automatic Temperature Compensation	●						
pH measurements in 'noisy' environments, eg. Electroplating	●	●					
pH measurements in high temperature (110 °C and 9 bar)			●				
pH measurements in the presence of Hydrofluoric acid (HF)				●			
pH measurements	●	●	●	●	●		
ORP / REDOX measurements						●	●
ORP measurement in cyanide treatment						●	
ORP measurements in all other applications							●

pH/ORP Electrodes line diagrams

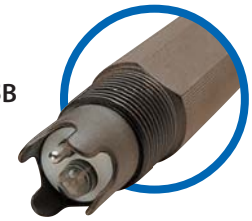
All measuurements in mm

pH Electrodes

EC100GTSO-05B

Specifications:		
pH range		0 to 14
Reference		Annular Teflon, double junction
Reference electrolyte		Saturated KCl, polymerized gel
Operating temperature		0 to 80 °C
Pressure tolerance		6 bars
Temperature sensor		Pt 100
Potential matching pin		Platinum
Material		PPS (Ryton)
Thread		¾" NPT
Cable		Integral 5m low-noise semi-conductor screened
Connector		BNC
Dimensions:	Length (excludes cable)	151 mm
	Diameter (external)	26 mm
Weight		650 g

ECARGTS0-05B



Specifications:		
pH range		0 to 14
Reference		Annular Teflon, double junction
Reference electrolyte		Saturated KCl, polymerized gel
Operating temperature		0 to 80 °C
Pressure tolerance		6 bars
Temperature sensor		N.A.
Potential matching pin		Platinum
Material		PPS (Ryton)
Thread		¾" NPT
Cable		Integral 5m low-noise semi-conductor screened
Connector		BNC
Dimensions:	Length (excludes cable)	151 mm
	Diameter (external)	26 mm
Weight		430 g

ECARHTTSO-05B

Specifications:		
pH range		0 to 14
Reference		Annular Teflon, double junction
Reference electrolyte		Saturated KCl, polymerized gel
Operating temperature		0 to 110 °C, high temperature
Pressure tolerance		9 bars
Temperature sensor		N.A.
Potential matching pin		N.A.
Material		PPS (Ryton)
Thread		¾" NPT
Cable		Integral 5m low-noise semi-conductor screened
Connector		BNC
Dimensions:	Length (excludes cable)	151 mm
	Diameter (external)	26 mm
Weight		430g

ECARTSOHF-05B

Specifications:		
pH range		0 to 14, HF resistant
Reference		Annular Teflon, double junction
Reference electrolyte		Saturated KCl, polymerized gel
Operating temperature		0 to 80 °C
Pressure tolerance		6 bars
Temperature sensor		N.A.
Potential matching pin		N.A.
Material		PPS (Ryton)
Thread		¾" NPT
Cable		Integral 5m low-noise semi-conductor screened
Connector		BNC
Dimensions:	Length (excludes cable)	151 mm
	Diameter (external)	26 mm
Weight		430g

ECARTSO-05B

Specifications:		
pH range		0 to 14
Reference		Annular Teflon, double junction
Reference electrolyte		Saturated KCl, polymerized gel
Operating temperature		0 to 80 °C
Pressure tolerance		6 bars
Temperature sensor		N.A.
Potential matching pin		N.A.
Material		PPS (Ryton)
Thread		¾" NPT
Cable		Integral 5m low-noise semi-conductor screened
Connector		BNC
Dimensions:	Length (excludes cable)	151 mm
	Diameter (external)	26 mm
Weight		430 g

pH / ORP / Conductivity / Disso

Pipe Mount

Panel Mount

Wall Mount

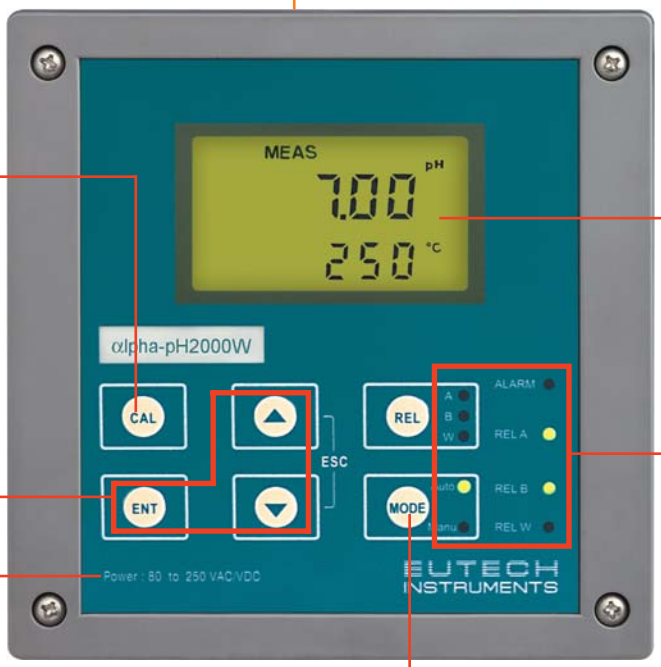
1/4 DIN Panel

Rated to IP 65 (Nema 4X), the rugged weather-proof casing simplifies installation outdoors or indoors.

Direct access to calibration sequence (password controlled) and sensor status

Access setup mode (password controlled) via menu layout for all controller settings and configuration.

Advanced Switch Mode Power Supply (SMPS) auto-detects power supply input from 80 to 250 V, AC or DC for regulated stable operation.

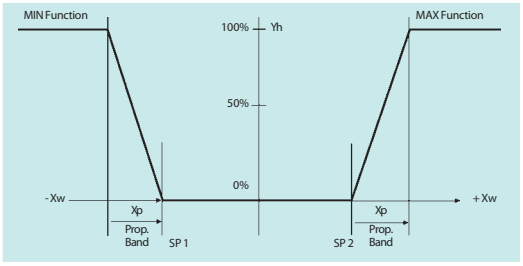


Back-lit LCD for brighter and clearer display; programmable contrast and illumination duration

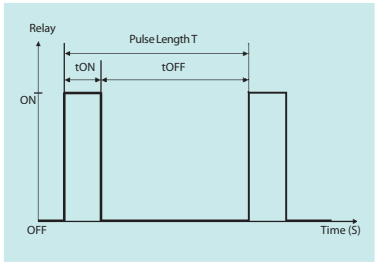
Bi-colour LEDs indicate relay status and mode of operation.

Manual control of relays (password control) for quick check of electrical connections to pumps and valves.

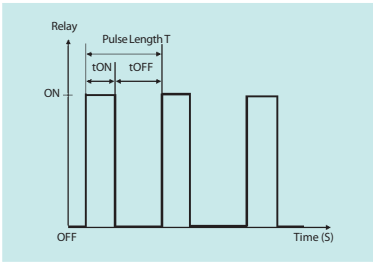
Proportional integral, Proportional or limit control, operation of relays



Control characteristic of controller as proportional controller

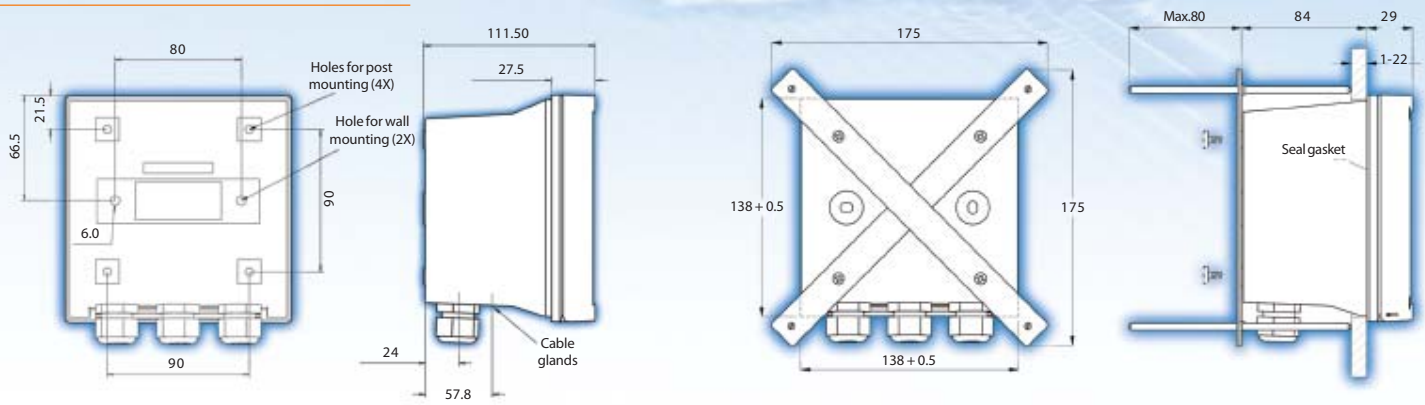


Controller signal of pulse length control



Controller signal of pulse frequency control

olved Oxygen

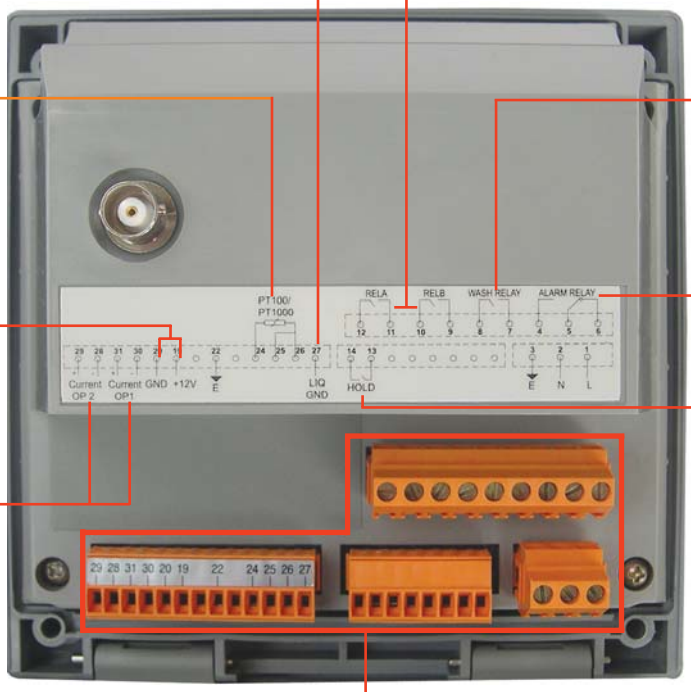


Wall Mount Drawing *(All measuurements in mm)*

Automatic Temperature Compensation with 2 or 3 wire Pt 1000 or Pt 100 temperature sensors.
3-wire system minimizes errors from the temperature sensor and cables.
View temperature values in degree Celsius or degree Fahrenheit.
Manual Temperature Compensation offers independent input of process and calibration temperatures.

Liquid ground (potential matching pin) for symmetrical operations (pH / ORP controllers only)

Independent Relay A and B allows combination of 'Hi' and'Lo' settings.



Wash relay allows automatic, periodical cleaning of sensors – used in conjunction with 'Wash' program

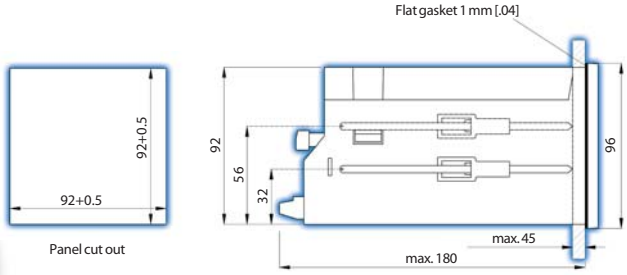
'Single-Pole-Double-Throw' Alarm relay for fail-safe operations. When power supply to the controller is broken, the alarm relay activates.

Useful 12V DC output from the controller powers peripheral wash mechanism, preamplifiers, etc.

'HOLD' terminals allow for pH/ ORP Master-slave operations (pH analyzer controls ORP analyzer only under controlled pH values)

Dual 4-20 mA scaleable outputs for measured parameter and temperature.
Unique 'Out-of-range' current setting at 22 mA differentiates normal readings from 'Out-of-range' values.

Detachable connectors for easier wiring.



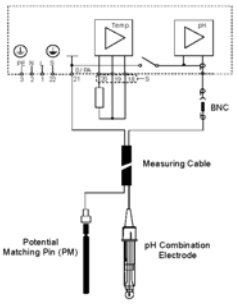
Panel Mount Drawing *(All measuurements in mm)*

Alpha pH 2000 pH/ORP

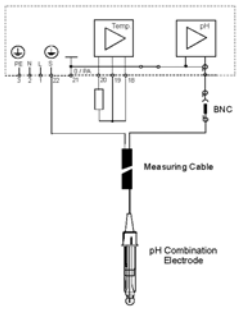
Controller/Transmitter

pH/ORP, two-in-one Controller (software selectable) for pH or ORP measurement modes.

Special Symmetrical configuration mode to facilitate operating in environments with electrical interference. Custom pH or ORP sensors are available with the potential matching pin for Symmetrical mode measurements.



Symmetrical



Asymmetrical

In the ORP mode, the alpha pH 2000 is able to measure in mV or as % concentration, with independent calibration modes. All parameters can be operated in the asymmetrical or symmetrical mode.

With a pH and ORP controller side-by-side, controllers can be operated in a master-slave operation where pH and ORP must be measured and controlled simultaneously, e.g. electroplating or swimming pool applications. Under this setup, pH is always maintained and controlled as a first priority. Only when pH readings are within set limits, will the ORP controller be allowed to operate the pumps.

pH calibration is quick and easy with push-buttons. Calibration buffer sets include US, NIST and DIN standards. Electrode condition is updated and displayed after each calibration.

For applications where Hydrofluoric (HF) acid is present, either Antimony or HF-resistant glass electrodes must be used.
When Antimony electrodes are used, select 'Antimony' electrode option from controller menu, to download relevant Antimony electrode data.

Specifications

Alpha pH 2000		
pH range		- 2.00 to 16.00
Accuracy		± 0.01 pH
Resolution		0.01 pH
Temperature		-10.0 to + 125.0 °C (14.0 to 257.0 °F)
Resolution		0.1 °C / °F
Relative Accuracy		± 0.5 °C (± 1.0 °F)
Temperature Sensor		Pt100 /Pt1000 (jumper selectable); 2 or 3 wire
Temperature Compensation		Auto / manual (reference at 25 °C)
Set-point and Controller Functions		
Function (switchable)		P/PI control (pulse length/pulse frequency); limit control
Integral time		0 to 999.9 minutes
Adjustable period with pulse length controller		0.5 to 20 sec.
Adjustable period with pulse frequency controller		60 to 120 pulses/min
Pickup / Dropout delay		0 to 2000 seconds
Wash cycle		0.1 to 199.9 hours
Wash duration		1 to 1999 seconds
Switching pH hysteresis		0 to 10 % of full scale
Contact outputs, controller		1 SPDT, 3 SPST relays
Switching voltage / current / power		Max. 250 VAC / Max 3A / Max 600VA
Alarm Functions		
Function (switchable)		Latching / pulse
Pickup delay		0 to 2000 seconds
Switching voltage / current / power		Max. 250 VAC / Max 3A / Max 600VA
Display		
LCD		UV coat, backlit 14 segments display with symbols for status information
Backlight		On/Off selectable with four level of brightness control
Electromagnetic Compliance (EMC) Specifications		
Emitted Interference		According to EN 50081-1
Immunity to Interference		According to EN 50082-1
Environmental Conditions		
Ambient temperature operating range		0 to 40 °C
Maximum Relative humidity		80% up to 31°C decreasing linearly to 50% at 40°C
Power Supply		
Input		80 to 250 VAC/DC 50/60 Hz Approx. 10VA
Main Fuse		250 mA anti-surge, S504 BUSSMANN
Pollution Degree		2
Transient Overvoltage category		II
Electrical Data and Connections		
Signal Output		Two 0/4 to 20 mA outputs for pH and temperature, galvanically isolated
Load		Max. 600 W
pH input		BNC (10^{12} impedance); Asymmetrical / Symmetrical
Connection terminal (Wall mount)		3-pin, 8-pin, 9-pin and 13-pin terminal, detachable blocks
Connection terminal (Panel mount)		3-pin, 9-pin and 19-pin terminal, detachable blocks
Mechanical Specifications		
Dimensions (W x H x D)	Wall Mount	144 x 144 x 110 mm
	Panel Mount	96 x 96 x 175 mm
Weight	Wall Mount	745g (unit) / 1100g (Packed)
	Panel Mount	550g (unit) / 950g (Packed)
Environmental Rating	Wall Mount	IP 65 (NEMA 4X)
	Panel Mount	IP54 (front panel)

Ordering Information

Alpha pH 2000 pH/ORP Controller/Transmitter – Wall mount	ECPHCTP2000W
Alpha pH 2000 pH/ORP Controller/Transmitter – Panel mount	ECPHCTP2000P